BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

IN THE MATTER OF THE CONTINUED COSTING AND PRICING OF UNBUNDLED NETWORK ELEMENTS AND TRANSPORT AND TERMINATION	Docket No. UT-003013

RESPONSE TESTIMONY OF JOHN C. KLICK ON BEHALF OF COVAD COMMUNICATIONS COMPANY AND RHYTHMS LINKS INC.

July 21, 2000

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John C. Klick. I am Executive Vice President of Klick, Kent & Allen, Inc. ("KKA"), an economic and financial consulting firm. KKA, a wholly-owned subsidiary of FTI Consulting, Inc., is located at 66 Canal Center Plaza, Suite 670, Alexandria, VA 22314.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I received a Bachelor of Science degree in Mathematics from Bates College in 1970, and have taken graduate courses in accounting, finance, and operations research.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A. After graduation from Bates College, I joined the Cost and Statistics Department of the Southern Railway System. Since that time, I have been continuously involved in cost analyses for a variety of industries, including telecommunications. Many of these cost studies have been submitted in administrative proceedings, in court and in arbitrations. These studies (which have included analyses of stand-alone costs, short-run and long-run incremental costs, total element long-run incremental cost ("TELRIC") and short-run and long-run marginal costs) often have employed complex, computer-driven cost models that rely on detailed engineering input data and sophisticated discounted cash flow techniques. KKA has been retained by numerous competitive local exchange carriers ("CLECs") to assist in analyzing cost and financial issues arising out of the Telecommunications Act of 1996.

My curriculum vitae is included as Attachment A to this testimony.

Q. WILL YOU BRIEFLY SUMMARIZE YOUR RECENT EXPERIENCE THAT IS RELEVANT TO THIS PROCEEDING?

A. I have had extensive experience with large, computerized databases and cost models. In addition, because many of these models have been presented in the context of litigation, I have had to analyze models sponsored by opposing parties, explain their deficiencies, and defend the model assumptions and techniques that I have utilized. Following are examples of projects that I have undertaken in these areas.

Since late 1996, I have assisted MCI, AT&T and other CLECs in presenting and analyzing cost evidence in various state proceedings arising out of the Telecommunications Act of 1996. I have presented HAI Model costs for unbundled network elements ("UNE") and universal service fund ("USF") proceedings in a number of jurisdictions, including Colorado, the District of Columbia, Idaho, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Utah, Washington and Wyoming. I have critiqued cost studies submitted by GTE in Iowa, Minnesota, Nebraska, New Mexico, Oregon, Texas and Washington. I also have submitted testimony in Texas on Southwestern Bell's cost studies, and critiques of the Benchmark Cost Proxy Model ("BCPM") in Colorado, Iowa, Kentucky, Louisiana, Minnesota, North Carolina, Pennsylvania, South Carolina, Utah, Washington and Wyoming. In addition, I have conducted "cross-model" comparisons to help identify for several State commissions the ways in which various models (e.g., the HAI Model, BCPM, and the GTE models) develop costs and the input variables to which they are particularly sensitive. Results of these cross-model analyses have been presented in Iowa, Utah and Washington.

I was involved in developing a Collocation Cost Model (sponsored by MCI Worldcom

and AT&T) that has been used to calculate the cost for physical, cageless and virtual collocation of a CLEC within an ILEC's existing central office. I have presented testimony on this model, and its economic underpinnings, in California, Florida, Georgia, Maryland, Minnesota and New York.

I was also consulted on the development of the AT&T and MCI WorldCom Non-Recurring Cost Model which calculates the non-recurring cost estimates for the tasks and activities that may be performed by an incumbent local exchange carrier (ILEC) when a competitive local exchange carrier (CLEC) requests wholesale services, interconnection, and/or unbundled network elements.

In addition, I recently testified on behalf of Covad Communications Company, New Edge Network, NorthPoint Communications, JATO Communications Corp. and Rhythms Linka Inc. in proceedings before the Minnesota Public Utilities Commission ("MPUC") *In the Matter of a Commission Initiated Investigation into Qwest Communications, Inc.'s Costs Related to Provision of Line Sharing Service* (the "Minnesota Line Sharing Docket").[1]

Q. HAVE YOU PREVIOUSLY TESTIFIED IN WASHINGTON?

A. Yes. I have filed testimony in several proceedings in Washington, which are included in my curriculum vitae included as Attachment A to this testimony. Specifically relevant to this proceeding, I testified in this Commission's generic proceedings entitled, *In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport*

[1] OAH Docket No. 12-2500-12631-2, MPUC Docket No. P-421/CI-99-1665

and Termination,and Resale,[2] *In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination,and Resale for Qwest Communications, Inc.,*[3] and *In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination,and Resale for GTE Northwest Inc.*[4]

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been asked by Covad Communications Company and Rhythms Links Inc. to address the direct and supplemental direct testimonies filed in this docket on May 19, 2000 by both Qwest and GTE (collectively referred to as "the ILECs").

Q. WHAT ASPECTS OF THE QWEST FILING WILL YOU PRIMARILY BE DISCUSSING?

A. I will focus on the rates proposed for splitter collocation, loop conditioning, and installation and disconnection of shared lines contained in the testimony of Qwest witness Jerold Thompson, and the underlying network design proposed by Qwest witness Hubbard. I leave much of the discussion of OSS cost recovery and the shared loop HUNE to Dr. Cabe.

Q. WHAT ASPECTS OF THE GTE FILING WILL YOU BE DISCUSSING?

A. Dr. Cabe will also be addressing the OSS cost recovery aspects of the GTE line sharing filing. I will address the remaining costs presented in the direct testimony of GTE witness Robert Tanimura, as supported by witnesses David Behrle and Linda Casey.

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[2] WUTC Docket No. UT-960369
[3] WUTC Docket No. UT-960370
[4] WUTC Docket No. UT-960371

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. In Section II of my testimony I first provide an overview of the evidence presented by Qwest and GTE in this proceeding. In Section III, I summarize the economic principles that underpin my analysis of the issues I am addressing. In Section IV, I briefly discuss the appropriate price for the loop, or HUNE. Section V addresses the costs of the splitter collocation elements required to provide line sharing. Section VI discusses costs associated with installation and disconnection of a shared line. Finally, in Section VII I summarize my testimony and describe my conclusions.

II. OVERVIEW

Q. WHAT IS YOUR OVERALL REACTION TO THE DIRECT FILINGS OF THE ILECS' TESTIMONY?

A. The costs that the ILECs present for line sharing in this docket are inaccurate. These inaccuracies generally overstate costs for three fundamental reasons. First, many of the ILECs' studies violate the requirement of the FCC's *Third Report and Order*[5] that costs be based on total element long run incremental costs, or TELRIC.[6] Second, the ILECs' cost

[5] In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability (CC Docket No. 98-147) and Implementation of Local Competition Provisions of the Telecommunications Act of 1996 (CC Docket No. 96-98), Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98. ("FCC Line Sharing Order").

[6] The Eighth Circuit released its July 18, 2000 decision in *Iowa Utilities Board v. FCC* three days before this testimony was due. The legal effect of this order has not yet been determined. The order may be stayed, appealed and remanded (as was the Court's first decision in that case), appealed and sustained, or simply allowed to go into effect. As I write this testimony, however, I understand that that FCC's rules promulgated as a result of the Local Competition Order remain in effect. In addition, because the principles I discuss in my testimony focus on achieving both goals of cost recovery and promoting competition, many, if not all, of those principles likely will be equally applicable under whatever rules are finally put into place to price unbundled network elements. The Eighth Circuit, after all, affirmed that the proper method for determining costs is a long-run forward-looking approach that is not based on the embedded costs of the ILEC's existing network. If the rules regarding the pricing of UNEs change prior to the hearing in this docket, however, I reserve the right to reconsider my recommendations in light of any new rules.

studies include costs for items or activities that are not required to provide line sharing in an *efficient* manner. Finally, the ILECs' studies are misleading, incomplete, and poorly explained.

Q. WHAT ARE THE PRINCIPAL LINE SHARING ISSUES THIS COMMISSION NEEDS TO FOCUS ON?

A. To address line-sharing, this Commission needs to determine the prices that Qwest and GTE can charge CLECs for three overall components -- high-frequency portion of the loop or HUNE;[7] the collocation of splitters (which includes the costs of planning and engineering; land and building spcae; relay rack; cable holes, ladder racks, main distribution frame ("MDF") space; tie cables; and MDF blocks); and the costs of installing and disconnecting a shared line.[8] It is my understanding that GTE will be providing its proposed prices in a filing to be made simultaneously with this one. In addition, the Commission should determine these charges for *each* of the three collocation arrangements discussed in Mr. Zulevic's testimony; *i.e.*, splitter collocation on the MDF, splitter collocation in a common splitter area adjacent to the MDF, and splitter collocation in the CLEC's collocation area.

[7] My testimony addresses the configuration for line sharing across copper loops. It is also technically feasible to provide line sharing over fiber-fed loops (that is, loops that contain both digital loop carrier and copper elements). Although the FCC did require the ILECs to provide line sharing over fiber fed loops, there is not yet any agreement in place that I am aware of that will implement that part of the order in Washington. It is also my understanding that the network architecture for line sharing through fiber-fed loops in Washington has not yet been determined. Accordingly, it is premature to address the cost of this variation of line sharing in Washington. Instead, I recommend that the Commission defer consideration of this issue until it is ripe.

[8] Qwest sets forth its proposed prices in Exhibit JLT-1 of witness Thompson's testimony. While this testimony refers to the costs of elements required for line sharing, it is my understanding that this Commission intends to establish prices based on long-run forward-looking costs.

Q. HAVE YOU RESTATED THE COSTS PROPOSED BY QWEST AND GTE FOR LINE SHARING?

A. As I explain further below, neither the costs for line sharing proposed by Qwest nor GTE are at a stage at which I can properly evaluate them. For example, Qwest states that "there are minor investment level differences" between the prices proposed by Mr. Thompson in JLT-6 and the underlying workpapers (COVAD 01-013). GTE admits at page 18 of Tanimura's direct testimony that at the time of that filing, rates were "currently under development," and a price proposal is to be filed concurrent with this testimony.

I intend to finalize my analysis of their proposed prices for line sharing in my reply testimony once I have been able to review the ILECs' final proposals.

III. UNDERLYING ECONOMIC PRINCIPLES

Q. PLEASE DESCRIBE THE BROAD ECONOMIC CONTEXT IN WHICH THIS PROCEEDING IS BEING CONDUCTED.

A. The federal Telecommunications Act of 1996 ("1996 Act") seeks to fundamentally change the way in which telecommunications services are provided to consumers. For this to happen, consumers must perceive -- and perceive correctly -- that it is as easy to choose and change DSL providers as it has become for them to change long distance carriers. This is especially important in the markets for new technologies such as DSL, where the decisions made by the Commission will determine whether ILECs will be able to leverage their monopoly hold over essential facilities and local exchange services into monopoly control of the markets for these new technologies. DSL carriers, for example, are not only competing with the ILECs for new DSL customers, but doing so in the face of existing ILEC relationships with the voice customers that give the ILECs significant

competitive advantages in the market. Decisions by this Commission that would in any way erect additional barriers to entry could effectively kill competition in Washington and must be avoided.

Q. HOW DOES THIS MARKET REALITY AFFECT THE ISSUES BEFORE THE COMMISSION IN THIS PROCEEDING?

A. Given the strong customer focus on convenience, reliability and cost, there are a number of ways in which ILECs, such as Qwest and GTE, can create barriers to market entry. These barriers can delay and ultimately prevent the development of competition in Washington. In my view, there are three areas that are critical to creating an opportunity for widespread meaningful competition for xDSL and other elements:

CLECs must be able to easily and reliably order all network elements, including those necessary for the provisioning of line sharing.

Network element prices must accurately track the manner in which an efficient ILEC -- using equipment, facilities, and capabilities that are currently available -- would incur its costs on a long-run forward-looking basis. The Commission certainly should not let Qwest or GTE employ inefficient equipment or procedures that artificially increase costs for CLECs. Prices based on long-run, forward-looking costs are consistent with prices one observes in competitive markets -- prices which regulation should seek to mimic to the maximum extent possible.

Non-recurring costs for provisioning of shared lines ("NRCs") must be based on a forward-looking environment in which full electronic, flow-through operations support systems ("OSS") are assumed to be available and operating effectively with minimal "fall-out" rates. This will result in costs for pre-ordering, ordering, provisioning and maintaining the network elements that are consistent with the competitive market model.

Overstated NRCs create significant barriers to local competition for xDSL and other UNEs by rendering it more expensive and/or less convenient for end users to choose a CLEC to provide their telecommunications services. The potential for NRCs to act as a barrier to entry makes it critical that the Commission and the parties have the opportunity to carefully scrutinize any claimed cost justifications for such charges. Therefore, this Commission should only allow Qwest and GTE to recover the NRCs associated with full electronic flow-through ordering and provisioning.

Achieving the conditions for widespread competition in the market for xDSL services -- *i.e.*, an environment in which customers can easily, reliably, and inexpensively change their xDSL provider -- is a prerequisite to achieving the full benefits of competition envisioned by the 1996 Act.[9]

Q. WHAT IS THE COMMISSION'S ROLE IN THIS PROCESS?

A. The Commission's efforts in this proceeding are required to provide CLECs with the opportunity to obtain UNEs -- including the network elements required to provide xDSL service over the high-frequency portion of the local loop -- at long-run, forward-looking costs that reflect non-discriminatory prices. This effort is essential to creating a realistic opportunity for the development of a competitive telecommunications market for xDSL. The Commission must ensure that the recurring and non-recurring rates that it sets and the terms and conditions that it requires satisfy these standards. Collocation and OSS costs that fail to satisfy these goals are irrelevant to determining the prices and terms and

[9] Public policy favors widespread entry. The 1996 Act is intended to bring the potential benefits of competition to as many customers as possible. Targeted local market entry, by providing services such as xDSL, is the most viable short-term entry strategy. Competition will never be robust if large numbers of customers remain effectively captive to the ILECs.

conditions that Qwest and GTE should be permitted to seek in this proceeding.

Q. IF THE ILEC'S PROPOSED LINE SHARING RATES ARE BASED ON LONG-RUN FORWARD-LOOKING COSTS OF EFFICIENT OPERATIONS, HOW SHOULD THESE COSTS RELATE TO AN ILEC'S EMBEDDED COSTS OF PROVIDING THESE SERVICES?

A. There should not necessarily be a high degree of correlation. ILECs incurred many embedded costs in the distant past. In the intervening time period, the costs of providing services efficiently have been affected by inflation, changes in techniques used to install and operate the facilities, and changes in the technology that is used to provide the service. Embedded costs also may reflect the effects of decisions that the incumbent has made historically (*e.g.*, to defer maintenance or to over-staff certain functions) that were not optimal. In competitive markets, however, relevant costs are *never* a function of the expenditures made historically. Instead, they reflect the costs that an efficient firm would incur today – on a going-forward basis – to provide the service or element.

Q. WOULD IT BE APPROPRIATE TO CALCULATE COLLOCATION COSTS BASED *ONLY* ON THE ACTUAL CASH EXPENDITURES THAT ILECS INCUR FOR COLLOCATION?

A. No. In competitive markets, service/facilities providers can recover *only* costs that are efficient, on a forward-looking basis. As a result, they are continually pushed to reduce costs, to improve technology, and to find revenue-generating opportunities for unused or under-utilized assets. Thus, if regulation is designed to mimic, to the maximum extent possible, circumstances (including prices) that would exist in competitive markets, prices for collocation and for line-sharing (including prices for splitter collocation) should be based on the long-run, forward-looking costs of providing these facilities efficiently. In contrast, the typical incumbent's approach to calculating the cost of collocation and line

sharing -- with its heavy reliance on embedded costs and costs developed on an "individual case basis," or "ICB" -- creates *no* incentive for the incumbent to be efficient or to otherwise reduce the costs of these elements. To the contrary, it creates perverse incentives for inefficiency and higher costs.

Q. ARE THERE OTHER REASONS WHY CALCULATING COSTS FOR COLLOCATION AND LINE SHARING ON THE BASIS OF THE ILECS' OUT-OF-POCKET EXPENSES IS NOT AN APPROPRIATE STANDARD FOR USE IN ESTABLISHING COST-BASED PRICES FOR COLLOCATION?

A. Yes. Under an ICB costing method, a potential entrant into a particular market must commit to purchasing a key input (such as splitter collocation) from the incumbent without knowing what that input ultimately will cost. This arises because, under an ICB approach, the cost cannot be known until construction is complete. Requiring CLECs to effectively sign a blank check for work that is under the control of a dominant ILEC provider creates a tremendous risk (and, thus, a barrier to entry) for these potential market entrants (like being forced to hire a competitor to plan and construct new office space for you, and promising to pay him whatever it costs when he is done).

Furthermore, ICB-based costs are fundamentally at odds with forward-looking costs. The ICB approach treats competitors as unwanted interlopers in the ILECs' central offices -- as unplanned-for anomalies in central office operations. In a forward-looking environment, however, interconnection between ILECs and competitors – with the attendant market opportunities for all – would be the norm, not the exception.

Q. ARE ASSUMPTIONS ABOUT CABLE RACK OCCUPANCY IMPORTANT IN DEVELOPING EFFICIENT, FORWARD-LOOKING COSTS?

A. Yes. Some incumbent collocation cost models substantially overstate costs by assuming

that relay and cable racks will have to be installed for the exclusive use of a single competing CLEC, or a small number of CLECs, instead of sharing racks between competitors and the ILEC. Incorporating such inefficiencies into the calculation of collocation costs -- including splitter collocation required for line sharing -- deprives competitors of the benefits of the economies of scope and scale achievable by an efficient incumbent. This would violate a key requirement of long-run, forward-looking cost studies, and generate rates for collocation and the central office components of line sharing that would be overstated and discriminatory.

Q. HOW SHOULD LAND AND BUILDING COSTS BE INCORPORATED?

A. In many states, ILECs have proposed large charges for collocation by competitors to defray the costs of building modifications that ILECs allege are related solely to the placement of collocation in the central office. Because the incumbent makes decisions without input from competitors regarding placement of colloction areas generally, and splitter collocation specifically, an unconstrained incumbent has the ability to select a central office location for collocation that is either difficult to access or requires extensive new construction. Such free reign might encourage ILECs to seek to impose site preparation charges (such as expenditures for demolishing existing walls, removing doors, or extending electrical and mechanical components), even before installation of splitters begins. In fact, it is not uncommon for incumbents to seek to force competitors to pay for new corridors, hallways, doors, and even a costly new external entrance to the building, allegedly to provide a "secure environment."[10]

[10] For example, Qwest could require that all of the cage construction is performed in its central offices require use of installers with joint degrees in electrical engineering and architectural design -- a requirement that almost certainly would increase costs. CLECs should not be

Building renovation charges imposed on competitors also can be prohibitive if the incumbents are allowed to treat all expenses associated with mandated changes in local building codes (items such as asbestos removal, building modification to meet the Americans with Disabilities Act requirements, new sprinklers, or fire alarm systems) as costs of collocation. It is unreasonable, and inconsistent with forward-looking costing principles, to assign to competitors the entire cost for upgrading central offices that do not meet current standards. Instead, these costs are appropriately part of the costs of the entire central office, and only a portion of these exceptional building costs recovered in a per square-foot land and building cost are reasonably identifiable as collocation costs.

IV. ILECS PRICE PROPOSALS FOR THE HUNE

Q. WHAT DOES QWEST PROPOSE TO CHARGE FOR THE HUNE IN WASHINGTON?

A. Qwest proposes to charge "50% of the unbundled loop rate ordered by the Commission," or $9.08 per loop ($18.16 x 50%). (Thompson Direct at 8.)

Q. WHAT DOES GTE PROPOSE TO CHARGE?

A. In contrast to Qwest, GTE does not propose *any* charge for the portion of the loop required for line sharing, consistent with the FCC's current pricing rules (Tanimura Direct at 17).

Q. IS QWEST'S PROPOSED HUNE PRICE CONSISTENT WITH THE FCC'S LINE SHARING ORDER?

A. No. In its Line Sharing Order, the FCC confirmed the point I made above, *i.e.*, that

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required to pay costs associated with inefficient policies. The point, here, is that this Commission must ensure that ILEC central Office activities are not used to erect artificial entry barriers.

TELRIC principles should guide the development of cost-based prices for the shared line. However, the FCC recognized that "the TELRIC methodology was designed to price 'discrete network elements or facilities,' rather than services. In the case of line sharing, however, the facility in question is, by definition, also used for two incumbent LEC services (local exchange service and interstate access service)." FCC Line Sharing Order at ¶138. The FCC concluded, therefore, that it had to "extend the TELRIC methodology to this situation and adopt a reasonable method for dividing the shared loop costs." *Id.*

To do so, the FCC concluded it was appropriate to charge CLECs no more for the high frequency portion of the local loop than "the amount of loop cost the incumbent LEC allocated to ADSL services when it established its interstate retail rates for those services." *Id.* at 139. The FCC went on to state in paragraph 140 of its Line Sharing Order that:

> We find it reasonable to presume that the costs attributed by LECs in the interstate tariff filings to the high-frequency portion of the loop cover the incremental costs of providing xDSL on a loop already in use for voice services. Under the price cap rules for new access services, the recurring charges for such services may not be set below the direct costs of providing the service, which are comparable to incremental costs. The rates the incumbent LECs set for their special access xDSL services should cover those costs. The incumbent LECs filed their cost support for their own special access DSL services before we issued the notice giving rise to this Order compelling line sharing, and they have defended their cost support when challenged in petitions to reject or suspend their tariff filings. Since the incremental loop cost of the high-frequency portion of the loop should be similar to the incremental loop cost of the incumbent LEC's xDSL special access service, this approach should result in the recovery of the incremental loop cost of the high-frequency portion of the loop. (Footnote omitted.)

Q. DO YOU KNOW THE AMOUNT OF THE LOOP COST QWEST INCLUDED IN THE COST STUDIES SUPPORTING ITS FEDERAL TARIFF FOR MEGABIT SERVICE?

A. Yes. Qwest did not include any loop costs in its direct costs for its federal tariffed xDSL

services, which it calls MegaBit. In other words, Qwest represented to the FCC that the incremental direct cost of a loop for xDSL that is already carrying voice service is $0.

Qwest does not dispute this. In fact, Qwest's cost witness, Mr. Thompson, concedes that the loop is not a direct cost of MegaBit service and therefore was not included in the cost studies underlying FCC tariff filing. (Thompson Supplemental Direct at 5-6). Qwest also admitted as much in its responses to WUTC Request No. 02-034, Rhythms Links, Inc. No. 03-002,.

By seeking to charge CLECs $9.08 per loop for access to the high-frequency portion of the spectrum when it has assessed its own MegaBit service *no* loop cost, Qwest is asking this Commission to put its imprimatur on discriminatory pricing, depart significantly from the FCC's recommendation, and create for Qwest the ability to impose an anticompetitive price squeeze on CLECs.

Q. TO CONCLUDE, WHAT DO YOU RECOMMEND IS THE APPROPRIATE LOOP COST TO BE ASSESSED FOR THE HUNE IN THIS PROCEEDING?

A. The appropriate loop cost to be charged by an ILEC for access to the high-frequency portion of the local loop is zero. Witness Cabe addresses this recommendation and proposes several arguments its favor.

V. SPLITTER COLLOCATION ELEMENTS NECESSARY FOR LINE SHARING

Q. HAVE YOU REVIEWED THE QWEST COST PROPOSALS IN MR. THOMPSON'S SUPPLEMENTAL DIRECT TESTIMONY?

A. Yes. Mr. Thompson's proposed rates for line sharing are identified in Exhibit JLT-6. His testimony on these prices is vague and ambiguous, and provides little support for the

charges identified. For example, he provides no support for the non-recurring and recurring costs for cross connects per 100 voice grade circuits, the non-recurring quote preparation fee, or the non-recurring and recurring bay rates per shelf.

Q. IS ANY SUPPORT FOR THESE RATES INCLUDED IN THE QWEST RESPONSES TO THE DISCOVERY REQUESTS PUT FORTH BY THE COMMISSION, COVAD, AND RHYTHMS?

A. Support for the Qwest proposed rates is ostensibly presented in these discovery responses. For some rate elements, however, these responses only cite on-going studies and therefore amount to nothing more than unsupported *assertions* by Qwest.

Rhythms Link request No. 03-010 also requested "a complete, electronic copy of all workpapers and source documents that US WEST used to develop Exhibit JLT-6." Although Qwest submitted workpapers in response, our analysis reveals that the investment figures in these workpapers are inconsistent with figures cited in Mr. Thompson's testimony. Furthermore, Qwest concedes that the investments it produced in its workpapers need revisions and is supposed to file supplemental investment calculations.[11] As of this filing, I am still awaiting these explanations.

Q. ARE YOU ABLE TO ADDRESS THE SPECIFIC UNDERLYING ASSUMPTIONS OF QWEST'S RATES?

A. Until further support for the bay (or relay rack), quote preparation and cross connect rates is produced, I am unable to address Mr. Thompson's cost calculations for these elements. I will, however, address some of the obvious flaws in the assumptions made by Qwest witnesses Thompson and Hubbard.

[11] COVAD 01-013

Q. DOES QWEST'S PRICE PROPOSAL ACCURATELY REFLECT THE ACTIVITIES REQUIRED FOR LINE SHARING ARRANGEMENTS?

A. As Mr. Zulevic's Rebuttal Testimony explains, there are three efficient designs for splitter collocation. One is to place the splitter on the MDF; one is to place the splitter in the common area of the central office adjacent to the MDF; and one is to place the splitter in a CLEC's collocation area. Mr. Zulevic testifies that the most efficient placement of splitters generally is on or adjacent to the MDF.

Qwest, however, has performed no cost study that takes into account any specific network design. Although Mr. Hubbard discusses two possible splitter collocation architectures (one in which the CLEC splitter is mounted on a relay rack adjacent to the MDF, and another in which the CLEC splitter is placed in a CLEC designated collocation space), Mr. Thompson's rate proposals do not distinguish between these scenarios. Thus, it is impossible to ascertain how Qwest would apply its rates for specific line sharing elements, if adopted, depending on the network architecture employed.

In addition, neither Mr. Hubbard's proposed network design nor Mr. Thompson's rates provide for splitter collocation using frame-mounted splitters, as discussed in the FCC Line Sharing Order at Paragraph 145. Qwest has agreed to deploy frame mounted splitters and has, in fact, deployed such splitters in its territory. According to Qwest's response to COVAD 01-043 and 01-045, however, Qwest has not calculated these costs but is "in the process of developing a study… and will supplement this data request when the study is complete."

Q. WHAT ARE THE UNDERLYING GUIDELINES THAT SHOULD GOVERN ANY CALCULATION OF RATES FOR THE SPLITTER COLLOCATION COMPONENTS REQUIRED FOR LINE SHARING?

A. The rates for the bay, cross-connections, and quote preparation (planning and engineering) should all be calculated assuming long-run forward-looking, efficient equipment and central office design. This forward-looking central office design would contemplate that the outside loop plant terminates at an ILEC's MDF.

Q. ARE QWEST'S PRICING PROPOSALS CONSISTENT WITH THESE GUIDELINES?

A. No. For one thing, it appears Qwest is attempting to recover the cost of using an intermediate distribution frame ("IDF") between the main distribution frame ("MDF") and the splitter, merely because Qwest's embedded plant often employs this approach in many of its central offices. Qwest's reliance on this technology is not forward-looking and therefore is not an appropriate basis for calculating what the ILEC should be able to charge a CLEC for line sharing.

As Mr. Zulevic illustrates, a forward-looking central office would either have the splitters mounted directly on the MDF, or have a block mounted on the MDF which is directly cabled (hardwired) to the splitter located either on a relay rack adjacent to the MDF or in the CLEC's collocation space. Adding yet another piece of equipment -- the IDF -- to this configuration creates unnecessary, additional costs with absolutely no benefit to the consumer. Neither the CLEC nor the consumers should be forced to defray the costs of Qwest's inefficient architecture decisions.

Q. ARE THERE MATERIAL DIFFERENCES BETWEEN COLLOCATION, GENERALLY, AND THE SPLITTER COLLOCATION REQUIRED FOR LINE SHARING THAT THE COMMISSION SHOULD TAKE INTO ACCOUNT?

A. Yes. For one thing, splitters are passive devices that do not require any power. In addition, splitter collocation does not require any modifications to the outside plant to accommodate CLEC entrance facilities. Finally, collocation of splitters does not involve any optical equipment.

Thus, while many of the functions required to initially plan and engineer for virtual collocation also are required for splitter collocation, the Commission must keep in mind the very real differences between splitter collocation for line sharing and the collocation of more sophisticated equipment.

In addition, the CLECs and Qwest have agreed that the CLECs either will purchase splitters through Qwest (and pay the direct costs of those splitters) or purchase their own splitter. Accordingly, the price of the splitter itself is properly excluded in Qwest's cost analysis. If, in the future, Qwest provides the splitters or splitter functionality at something less than a full shelf at a time, then the Commission's approved rates should be adjusted to reflect this variation of splitter collocation.

Q. WHAT ARE YOUR RECOMMENDATIONS CONCERNING MANPOWER REQUIREMENTS FOR PLANNING, ENGINEERING, AND QUOTE PREPARATION?

A. I worked closely with Covad's Director of Network Deployment, Michael Zulevic, to develop costs of planning and engineering required for line sharing. Mr. Zulevic has approximately 20 years of experience engineering and working in a central office environment. Our conclusions are set forth in the following table.

ILEC Manpower Requirements for Planning and Engineering

for three splitter collocation designs for line sharing

Function	Splitter on	Common Splitter Area			Splitter in
		SPLITTER	**RACK**	**TOTAL**	
MDF Planning	**2.0**	1.0	0.0	**1.0**	**1.0**
Overhead Rack Planning	**0.5**	0.5	0.0	**0.5**	**0.5**
Equipment Engineer	**3.0**	1.0	3.0	**4.0**	**0.0**
Equipment Installation Project Manager	**2.0**	1.0	1.0	**2.0**	**1.0**
Operations Group	**1.5**	1.0	1.0	**2.0**	**1.0**
ILEC Contact Group	**1.0**	1.0	0.0	**1.0**	**1.0**
Other ILEC Groups	**1.0**	1.0	0.0	**1.0**	**1.0**
TOTAL HOURS	**11.0**	**6.5**	**5.0**	**11.5**	**5.5**

Q. HOW DO THE REQUIRMENTS FOR LINE SHARING CHANGE IF A CLEC WANTS TO USE ITS EXISTING TIE CABLES?

A. A CLEC may have existing tie cables connecting the distribution frame to the CLEC's collocation area that it wants to use for line sharing.

In the scenario where a CLEC may request that the splitter be placed on the MDF and wants to re-use existing tie-cable capacity, the only additional activities necessary for line sharing would be to place the splitters on the MDF and install jumper wires between the data terminals on the splitter block and the existing terminal block for the CLEC's DSO pairs. Therefore, the CLEC should not be required to pay additional costs for manpower related to overhead rack planning. In addition, the ILEC should not be able to double charge the CLEC non-recurring charges associated with the cross connects. The CLEC would incur, however, an

additional non-recurring per-line installation charge for the additional jumper required between the data terminal on the splitter block and the existing terminal block for the CLEC's DSO pairs.

In another scenario, the CLEC may elect to use only existing cabling from the MDF and collocate the splitter in its own collocation area. This scenario would eliminate the need for any manpower costs relating to planning and engineering because the CLEC would already have all of the required facilities in place (two block terminals on the MDF and tie cables connecting the block terminals to the CLEC's collocation area). Similarly, the CLEC would have already paid the non-recurring charges for the tie cables and block terminals and would currently be paying the recurring charges for the cable hole, cable rack and MDF space. Accordingly, if the CLEC used existing cable capacity in this manner, then the CLEC would not incur any additional charges for placing the splitter in its existing collocation area. If the CLEC later chooses to augment the number of cables coming into its collocation area to replace some, or all, of the pairs devoted to line sharing, then the CLEC should be charged one-half of the rates applicable to that scenario for each 100-pqir cable it adds.[12] In this scenario, the recurring per-line provisioning costs I propose would not change.

[12] Obviously, the CLEC should have the ability to convert only one tie cable over to line sharing if it would like. This scenario would only require the CLEC to pay one-half of the recurring and non-recurring charges I propose for the scenario in which a splitter is collocated in the CLEC's collocation area.

Q. HOW SHOULD THE COMMISSION DETERMINE WHICH SET OF SPLITTER COLLOCATION RATES SHOULD BE APPLIED TO A CLEC'S SPLITTER INSTALLATION?

A. A CLEC should be able to choose from all three splitter collocation scenarios. If, for some reason, Qwest requires a CLEC to implement a different, higher cost collocation arrangement than the one the CLEC requests, Qwest should only be able to charge the CLEC the price associated with the CLEC's preferred option. Again, a CLEC should not be penalized for Qwest's existing inefficiencies and Qwest should not be able to impose inefficient configurations on a CLEC.

Q. WHAT IS YOUR REACTION TO THE COSTS FOR LINE SHARING FILED BY GTE?

A. I have several criticisms of GTE's costs, including those associated line sharing splitter configuration, line sharing central office design assumptions, material loading factor, and engineering factor.

Q. WHAT IS YOUR CRITICISM OF THE GTE SPLITTER CONFIGURATION DESIGN?

A. In the testimonies of both Mr. Boshier and Mr. Tanimura, GTE proposes three configurations for network design configurations. These three configurations should not be confused with those discussed by myself and Witness Zulevic, because the assumptions behind them are very different. The three GTE configurations are simply, (1) CLEC-owned splitter in a virtual collocation arrangement, (2) CLEC-owned splitter in CLEC collocation area, and (3) GTE-owned, bay-mounted splitter. Nowhere does GTE propose an option which employs a CLEC-owned MDF-mounted splitter.

Q. WHAT IS THE PRICING PROPOSAL FOR GTE'S THREE CONGIGURATION OPTIONS?

A. Both testimonies assert that that the first configuration -- in which the CLEC owns the splitter and establishes line sharing in a virtual-like collocation manner -- is the "preferred" splitter collocation option. Yet, GTE's pricing proposal for this "preffered" splitter configuration has yet to be produced. According to the response to COVAD 01-0010, this proposal will be filed July 21, 2000, the same day this testimony is filed.

Q. WHAT ARE THE UNDERLYING ASSUMPTIONS MADE BY GTE IN ITS LINE SHARING PRICING?

A. Behrle Confidential Exhibit 2 includes no actual estimate of the length of cable necessary for the connection to the splitters. Instead, he simply assumes that each of the standard length cables will be required with equal probability. In addition, GTE assumes that the cable that carries voice and data from the MDF to the splitter is 175 feet but that the cable carrying voice only back from the splitter to the MDF is only 125 feet. This seems inconsistent. In any event, these length assumptions are too long for a central office that is purportedly forward-looking in nature.

Q. WHAT ARE YOUR CONCERNS REGARDING THE MATERIAL LOADING FACTOR?

A. Behrle's proposed material loading factor, presented in page 2 of his exhibit, is unusually high. When asked in (COVAD 01-002) how this factor is calculated, GTE responded with similar material loadings factors for the three previous years, and then the average of that data. This hardly explains the calculation. Without

any knowledge of what calculations support those annual material loadings factors, I am at a loss to evaluate the merit of the implied costs generated by this factor.

In any event, it is never appropriate to calculate installation as a flat percentage of material cost because the time required to install equipment is not directly dependent upon the cost of the material. The only appropriate method is to understand and approximate the task required, the time rquired, and the rate of labor involved and then calculate "bottoms-up" installation cost.

Q. IS THE SOURCE OF THE ENGINEERING FACTOR AMBIGUOUS AS WELL?

A. Yes. The engineering portion is calculated as 10% of material cost. According to GTE's response to COVAD 01-006, this engineering factor is the average of two work order estimates. Taking this response into account, I have four criticisms of this factor and its development.

First, as is the case for the installation factor, it is not appropriate to calculate engineering as a flat percentage of material cost when the time to engineer a job is not directly dependent upon the cost of the material. The only appropriate method is to understand and approximate the tasks and the time required on a "bottoms-up" basis, as Mr. Zulevic and I have done. Second, this factor is based a "sample " of only two historical work orders. Two is hardly a representative sample of the engineering that would be incurred by an efficient ILEC to provide line sharing. Even if it were appropriate to use actual central office designs to estimate

engineering costs for line sharing -- and it is not -- work orders is an ifficient basis. Third, this engineering factor is based on estimates, not actually completed jobs. Feasibly, these estimates could drastically understate or overstate the costs in such an early phase of line sharing. The result of the final product could vary drastically from what was "estimated." Finally, if these are the first two line sharing projects undertaken by GTE in Washington, it would be appropriate to assume that in the mean time, the engineering time required will decline significantly as line sharing requests become more common and GTE engineers become familiar with line sharing requests in the central office.

VI. ILECS' PRICE PROPOSALS FOR INSTALLATION AND DISCONNECTION

Q. HAVE YOU EVALUATED THE ILECS' COST STUDIES FOR INSTALLATION AND DISCONNECTION OF LINE SHARING LOOPS?

A. Yes I have. This Commission has already made many determinations in the Generic Cost Docket relating to the install and disconnect charges for POTS. It is my understanding that these charges are being reviewed in this proceeding.

Many of Qwest's proposed charges in this area reflect an attempt to charge CLECs for manual ordering and provisioning. However, the FCC required that:

> incumbent LECs should be able to implement OSS and other loop facility modifications within 180 days of the Commission's release of this order to accommodate requests for access to this new network element. We believe that there may be interim measures that will allow competitive carriers to begin obtaining some form of access to this unbundled network elements even before 180 days. Id. at ¶161.

In light of the FCC's order, these systems should already be in place by the time

this hearing takes place. Qwest should not be able to recover the significantly higher costs associated with manual ordering and provisioning associated with line sharing because it has failed to meet the FCC requirement to update its OSS systems.

Q. DO QWEST'S PROPOSED INSTALLATION AND DISCONNECTION RATES REFLECT THE USE OF A METHODOLOGY THAT IS INHERENTLY INCONSISTENT WITH THE INTENT OF THE FCC?

A. Yes. Qwest's costs reflect manual ordering and provisioning and are inconsistent with forward-looking principles.

Q. ARE QWEST'S COSTS CONSISTENT WITH THE REQUIREMENTS OF THE COMMISSIONS PREVIOUS ORDER ON INSTALLATION AND DISCONNECTION COSTS?

A. No. The Commission's May 11, 1998 order in Docket No. UT-960370 required Qwest to update the installation and disconnection charges. Specifically, the Commission states:

> The cost findings in this Order do not reflect the transactional efficiencies that may be achieved through computer links between the ILECs' and CLECs' operational support systems. When these systems are in operation, we expect the ILECs to fulfill their commitment to revise their studies to reflect the associated savings (para 481).

This is particularly relevant here, because Exhibit BJB-14 to witness Brohl's testimony describes that both the Interconnect Mediated Access - Electronic Data Interexchange ("IMA-EDI") and the Interconnect Mediated Access - Graphical User Interface ("IMA-GUI") allow CLECs to "use the same interface to send their pre-ordering and ordering transactions, which are processed by the same OSSs that provide these functions to US WEST's retail units."

If this testimony is meant to suggest that "computer links" now exist, consistent with the Commission prior order, the manual processes that underlie Qwest's installation costs are inappropriate, because they to do not comply with the Commission's requirement to provide an updated study. Without a valid submission by Qwest on the charges for installation and disconnection, I cannot evaluate its proposal and have not done so here. I reserve the right to provide additional comments once Qwest has complied with the Commission's order. In any event, the proper basis for calculating installation and disconnection charges, consistent with long-run, forward-looking costs is on the basis of full electronic flow-through OSS systems.

Q. HOW WOULD YOU PROPOSE THIS COMMISSION DETERMINE THE COSTS OF INSTALLATION AND DISCONNECTION FOR LINE SHARING?

A. First, this Commission should require both Qwest and GTE to comply with paragraph 482 of the Commission's Eighth Supplemental Order by updating the installation and disconnection charges to reflect 100% full-electronic,flow through processes.

Second, the Commission's installation rate should be modified to account for one jumper disconnection and two jumper connections, as described in Mr. Zulevic's testimony. The disconnection rate similarly needs to be modified to account for two jumper disconnections and a connection to enable a customer to once again

receive voice service from the ILEC when it discontinues DSL service from a CLEC. However, the cost of this connection only applies when a customer discontinues a CLEC's DSL service but maintains a voice service with the ILEC (*i.e.*, when a customer is not moving or discontinuing all service).

Q. WHEN SHOULD THE DISCONNECT CHARGES BE ACCESSED AGAINST A CLEC?

A. This charge should be applied *only* when the CLEC customer actually cancels its DSL service from the CLEC and the line is no longer shared. Based on the type of product that xDSL is, I expect that the majority of xDSL customers will maintain service until they move. Thus, there would be a very long period of time between the initial connection of service and the termination of service. The CLEC should not be required to pay the ILEC for disconnection until it actually ceases to line share. This also eliminates the need to estimate the DSL churn rate which would be required calculate the present value of the future disconnection. If the Commission determines to require a CLEC to pay the cost of disconnection as part of the NRC for installation, then it would be necessary to also determine the churn rate and reduce disconnect costs to its present value to avoid a windfall to the ILECs.

Q. ARE GTE'S INSTALLATION AND DISCONNECTION COSTS CONSISTENT WITH THE FCC ORDER?

A. GTEs Installation and disconnection charges, per se, are bundled within the overall proposal for collocation elements. GTE does however present these costs in two forms: one with manual assumptions and the other with electronic flow

through. As we are still awaiting a final price proposal from GTE, I will address further the aspect of specific installation and disconnection components of their proposal in my reply testimony.

VII. SUMMARY AND CONCLUSION

WILL YOU PLEASE SUMMARIZE YOUR CONCLUSIONS?

A. Yes. The line sharing costs provided by both Qwest and GTE are incomplete and poorly documented. Despite that fact, I can conclude that they are inconsistent with the long-run, forward-looking cost principles that should be used to establish prices that are consistent with a competitive market standard of regulation. I will be able to expand upon and refine my criticisms of the ILECs' proposed changes once they are complete and fully documented.

Q. DOES THAT CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.